

**AN INTRODUCTION TO THE
SCIENCE DATA PROCESSING SOFTWARE MANAGEMENT TEAM
OF THE EOS GROUND SYSTEM AND OPERATIONS PROJECT**

APRIL 1, 1991

Role of the Science Data Processing Software Management Team of the EOS Ground System and Operations Project

RESPONSIBILITY:

1. The primary responsibility of this team is to provide a software development environment that enhances the opportunity of the EOS science community to produce quality products over the life of the EOS Program.
2. Derived responsibilities include working with the investigator community to:
 - define the interfaces with the EOSDIS,
 - specify the Science Computing Facility (SCF) environment and tools that will emulate the EOSDIS environment,
 - identify software portability issues and solutions to aid in integration of science data processing software from the SCFs to EOSDIS,
 - identify software maintainability issues and solutions to decrease the long-term costs of EOS operations,
 - support the development, documentation, integration, test, and transfer (porting) process.
3. Management responsibilities include:
 - ECS contractor evaluation with respect to SCF tool development and PGS interface development.
 - progress status tracking and reporting,
 - cost tracking, accounting, and reporting,
 - planning and plans assessment.

NEAR TERM APPROACH

1. Meet the investigator community to understand the scope of each investigation, the investigator environments, expectations of the EOSDIS, and needs from the GS&O Project.
2. Synthesize a uniform view of the expectations of the EOSDIS. This will provide a basis for specifying the interfaces and tools.
3. Research software portability issues, including the direction of POSIX/UNIX, language specific issues, guidelines for enhancing the portability of source code.
4. Research software maintainability issues.
5. Research software management and development technology advancements, such as computer aided software engineering (CASE) and Object Oriented techniques.
6. Implement an evolving research laboratory of workstations, portable operating systems, language compilers, and tool sets to test technologies and solutions and to demonstrate effective software development and management strategies.

The Team

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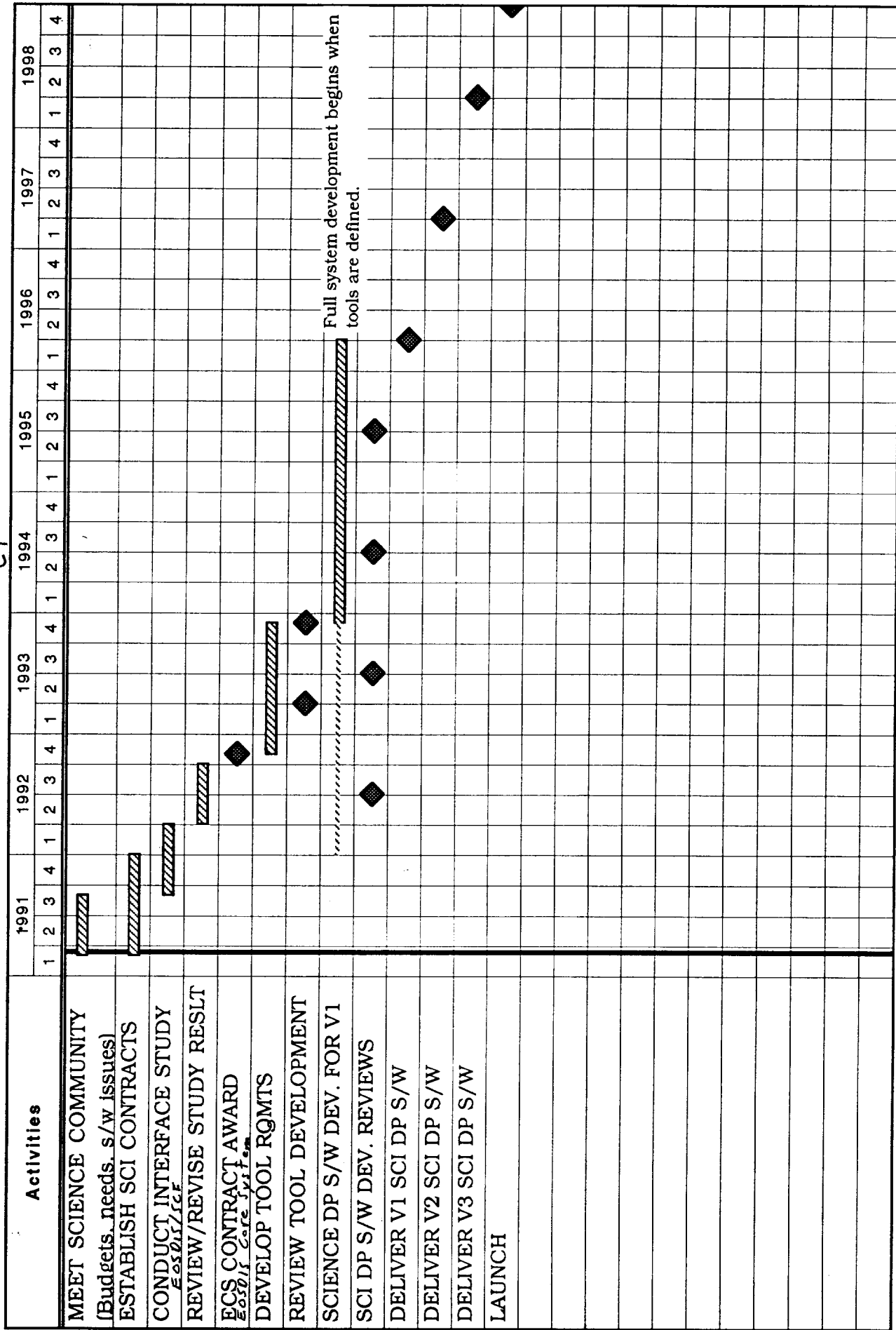
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SCIENCE DATA PROCESSING SOFTWARE DEVELOPMENT SCHEDULE

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SCIENCE SOFTWARE DEVELOPMENT SCHEDULE ACTIVITY AND MILESTONE DESCRIPTIONS

Meet Science Community

This activity is a familiarization effort to introduce the science data processing software management team to the EOS science community and to explore relationships. Items to be discussed are:

- Budget profiles for the science, algorithm, and science computing facility (SCF) line items;
- Science software development methods and technology in use in the community;
- Software management needs and issues between the project and the science community.

Establish Science Contracts

Contract vehicles need to be put in place between NASA and the Team Leaders (TL), Team Members (TM), and Principal Investigators (PI) that establish the working relationships. These need to be in place by the end of CY 91. The activity entails preparation of statements of work (SOW), proposal preparation and review, and contract negotiations and implementation.

Conduct Interface Study

There is a need to define the science interface to the EOSDIS environment. While the details of the interface need to be established by the EOSDIS Core System (ECS) contractor, preliminary study of the needs of the science community with respect to the interface can proceed. The following needs will be explored:

- What interface tools are required by the TL/TM/PIs?
- What software development tools are needed?
- What factors should be considered in procuring SCF equipment?
- What are the software development issues, such as portability and maintainability, and how will they be addressed?

Review/Revise Study Results

The draft study results from the previous activity will be fully reviewed throughout the science community and revised to represent consensus.

ECS Contract Award

This is the point at which the interface study will be provided to the ECS contractor for consideration in the development of the SCF tools and the design of the science data processing software interface with the Product Generation System (PGS).

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Develop Tool Requirements

This is an ECS contractor activity to develop the SCF tool kit that emulates the PGS environment.

Review Tool Development

The software management group (and perhaps a subset of the science community - the Data Panel?) will review the progress and technical issues involved in the development of the SCF tool kit.

Science Data Processing Software Development for Version 1

During this period the science community develops their initial software for delivery to the project.

Science Data Processing Software Development Status Reviews

A yearly review by the project will be conducted with each science data processing software development group. Areas to be reviewed include:

- Design approach,
- Progress, plans, and problems,
- Interface issues,
- Programmatic issues.

Deliver Version 1 of the Science Data Processing Software

The first delivery of software will be made to the prototype DAAC to be installed by the ECS contractor at GSFC during 1995. By April of 1996 the prototype DAAC should be well established and stable. Access to this DAAC by the EOS investigators will be available.

The first version of the science data processing software will test the integration path from SCFs to the EOSDIS environment. Interface testing, sizing, and performance requirements will be explored during the process of integrating the Version 1 software. The software should be as complete as possible; minimally it needs to simulate the computational scope, job size, and storage required for the product generation software to be in place at launch.

Deliver Version 2 of the Science Data Processing Software

This delivery will be made to the target DAACs in which the software will be used to produce products. Release 3 of the ECS supports a PGS at each of the seven DAACs and is scheduled for implementation in March 1997. This is the first opportunity to integrate and test the science data processing software in its resident environment.

Version 2 science data processing software will be the result of all the lessons learned during Version 1 integration and testing. It will test

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the refined PGS interfaces, confirm computer resource budgets, and test complete operator interface procedures, including the generation of operator/error messages.

Deliver Version 3 of the Science Data Processing Software

This is the launch-ready software that will be delivered to the target DAACs for final integration and test nine months prior to launch. Following successful integration and test of the software, operations procedures finalization and testing, training, and performance tuning will be completed.

Launch

Operations commences following a period of operations and science verification. Science data processing software will be updated as necessary in a controlled manner to avoid production disruptions.

Summary of the SOW Requirements

DELIVERABLES:

1. Cost and Management Plan
2. Software and Data Management Plan
3. Science Computing Facility Plan
4. Calibration Plan
5. Software end-items, including programs, test data, users guide, operations guide, and version description.

MEETING SUPPORT:

1. IWG meetings
2. As-needed EOS project-wide meetings
3. Annual software development status review meetings
4. Internal investigation team meetings.

REPORTS

1. Quarterly Investigation Status and Technical Report
2. Quarterly 533 Financial Report.